

Background Information:

The way that pain from your foot reaches your brain is by electrical warning signals that travel along the peripheral nerve. When receptor cells on the skin's surface experience an injury or damage they send a signal to the brain through the peripheral nerve fibers. These fibers then carry the electrical signal to the dorsal horn in the spinal cord. Once the brain receives the signal it sends it through your physical, emotional, and thinking center of your brain so you can think about what to do.

Some pain doesn't reach the brain because there are special cells called gatekeeper cells. They can either reduce or block the pain signals. For example if you hit your foot, you might rub it. The signal of touching or rubbing the injury will make the gatekeepers allow less of the pain signals through to the brain.

There are many factors that deal with pain. For example if you are playing a sport and you hurt yourself you might not realize it till after the game. Your mind is focused on the game but if you are tired or nervous you might experience more pain. Playing a video game can help distract the brain and has been used to help burn victims forget about their pain during painful treatments.

Introduction:

The purpose of this experiment is to see if playing a video game increases your level of pain tolerance. Subjects will be able to leave their foot in a painful situation longer when they are engaged in a distracting activity. The dependent variable in this experiment is to see if playing a video game makes your tolerance of pain go up. The independent variable is if the volunteer is playing a video game or doing nothing. The controlled variables are the temperature of the snow and the video game.

Hypothesis:

If the volunteer is playing a video game, he or she will keep his/her foot in the snow longer than if he or she was not playing a video game because when you play a video game it distracts you from the pain.

Materials:

- Snow (or ice water)
- A bowl to put the ice water or snow in
- A video game
- Volunteers
- A notebook to record the data
- Stopwatch

Procedure:

1. Gather your materials.
2. Have the test subject sit down and take off his/her left shoe and/or sock.
3. Place his/her left foot in ice water or snow.
4. Instruct the volunteer to try and keep his/her foot in the bowl for as long as possible.

5. Time the volunteer to see how long him/her can keep his/her foot in the bowl.
6. Give the volunteer 2 minutes to get his/her foot warm and allow him/her to put his/her sock and/or shoe back on.
7. Ask the subject take off right shoe and/or sock.
8. Allow volunteer to start playing the video game.
9. Repeat steps four and five but with right foot.
10. If he/she go over 2 minutes stop the timer and let him/her take his/her foot out of the bowl.
11. Thank the test subject for helping with experiment and allow them to leave.
12. Repeat all steps for each test subject.

Data:

The volunteer	Subject 1	Subject 2	Subject 3	Subject 4	Subject 5
Time with foot in water Left Foot	40 sec.	16 sec.	31 sec.	47 sec.	51 sec.
Time with foot in water and playing a video game Right Foot	51 sec.	35 sec.	106 sec.	96 sec.	86 sec.

Conclusion:

My hypothesis was correct because I said that the volunteer would keep his/her foot in the snow longer while playing a video game than when he/she wasn't playing a video game. I think my hypothesis was right because video games distract your brain from the pain in your foot. For my next experiment I would like to see if reading increases your level of pain tolerance more than playing a video game.

References

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